

IN THE CLAIMS

1. A carboneous fuel containing triemethoxymethylsilane.

2. A carboneous fuel containing a combustion catalyst, selected from the group of triemethoxymethylsilane, dimethylphosphite, ethoxytrimethylsilane, isobutyltriethoxy-silane, tetramethylsilane, dimethoxy-methyl-vinyl-silane, methyltriethoxysilane, 3-aminopropyl-triethoxysilane, 3-aminopropyl-trimethoxysilane, vinyltrimethoxysilane, diethoxydi-methylsilane, dimethoxydimethylsilane, vinyltris(2-butyldenamino-oxy)silane, tetraalkyloxysilanes, tetramethoxysilane, tetraethoxysilane, tetrapropylloxysilane, tetraisopropylsilane, tetraisobutylsilane, dialkylphosphites, dimethyl-phosphite, diethylphosphite, dipropylphosphite, dibutylphosphite, di-tert-butylphosphite, trialkylphosphites, trimethylphosphite, triethylphosphite, tripropylphosphite, triisopropylphosphite, tributyl-phosphite), dimethylmethylphosphonate, diethylmethyl-phosphonate, P-pyrophosphate, trimethyl-orthoacetate, trimethylorthovalerate,

trimethylorthobutyrate, trimethylortho-formate,
 alkyloxymethanes, tetraalkyloxymethanes, tetramethoxymethane,
 tetraethoxymethane, tetrapropoxymethane,
 tetraisopropoxy-methane, tetratert-butoxy-methane, potassium
 pyrophosphite, trimethylorthoacetate, triethylorthoacetate,
 trimethylorthobutyrate, triethylortho-butyrate,
 trimethylorthovalerate, trimethylorthoformate,
 dimethoxymethane, diethoxyethane, tetramethoxymethane,
 triethoxymethylmethane, tri-methoxymethylmethane,
 tetraethoxymethane, trimethoxymethylethane,
 triethoxymethylethane, glacial acetic acid, acetic acid
 anhydride, (acetyloxy) acid, ethyl ester (acetyloxy)
 acetic acid; aminooxo acetic acid, aminooxo acetic acid
 hydrazide, ammonium acetate, acetoacetic acid, methoxyacetic
 acid, ethoxyacetic acid, methoxy ethyl ester of acetic acid,
 methoxy methyl ester of acetic acid, ethoxy methyl ester of
 acetic acid, ethoxy ethyl ester of acetic acid, propoxy methyl
 ester of acetic acid, oxoacetic acid, an alkylhydroxyesters of
 acetic acid, methylesterhydro-xyacetic acid,
 ethylesterhydroxy-acetic acid, propylesterhydro-xyacetic acid,
 alkyl acetates, methyl ester acetic acid, ethyl arsenate, ethyl
 arsenite, methyl ester of butanic acid, ethyl ester of butanic

acid, 2-hydroxybutanic acid, 3-hydroxybutanic acid,
 3-hydroxy-ethylester of butanic acid, 2-hydroxyethylester of
 butanic acid, diphenyl carbonate, dipropyl carbonate,
 ethylmethyl carbonate, dibutyl carbonate, tetranitromethane,
 triethylphosphine oxide, triethylphosphine oxide,
 triethylphosphine, diethyl-phosphinic acid,
 dimethylphosphinic acid, ethyl diethylphosphinic acid,
 diethylphosphonic chloride, dibutyl ester phosphonic acid,
 (1,1-dimethylethyl) phosphonic acid, ethenyl diethyl ester
 phosphoric acid, diethyl ethylphosphonate, ethyl dimethylester
 phosphonic acid, methyl dimethylester phosphonic acid, methyl
 monoethylester phosphonic acid, methyl monomethylester
 phosphonic acid, methyl-O,O-dimethylester phosphonothioic acid,
 diethyl ester phosphoric acid, dimethyl ester phosphoric acid,
 tributyl phosphate, ethylphosphate, trimethyl ester ester
 phosphoric acid, triethyl ester ester phosphoric acid,
 tripropyl phosphate, O, O, O,'-triethyl ester phosphorothioic
 acid, diethylester phosphorous acid, dimethylester phosphorous
 acid, tributyl ester phosphorous acid, triphenyl ester
 phosphorous acid, O,O,S-tiethyl ester phosphorodithioic acid,
 2-methyl-1,2,propanediol, 2-methyl-2-nitro-1,3,-propanediol,
 2-methyl-2-propyl-1,3,-propanediol,

1-nitrate-1,2,propanediol,
 1,1',1'',1'''-[methanetetrayltetrakis(oxy)]-tetrakis propane,
 methyl propyl ether, isopropylmethyl ether, isobutyl methyl
 ether, ethyl propyl ether, propylmethyl ether, butyl methyl
 ether, 1,1'-[methylenebis(oxy)]bis[2-methyl-propane,
 1-(1-methylethoxy)-propane,
 2,2',2''-[methylidyne-tris(oxy)]tris propane,
 1,1',1''-[methylidynetris(oxy)]tris[2-methyl propane,
 2-methyl-1-nitro propane, 2-methyl-2-nitro propane,
 hydracrylonitrile, 1,1,1-triethoxy-propane,
 1,1,3-triethoxy-propane, 1,1,1-trimethoxy-propane,
 1,1,3-trimethoxy-propane, 1,1,1-trifluoro-3-nitro-propane,
 2-pyrrolidinone, phenol, and mixture.

3. The composition of claim 2, wherein the
 combustion catalyst is selected from group consisting of
 trimethoxymethylsilane, ethoxytrimethylsilane,
 isobutyltriethoxysilane, tetramethylsilane,
 dimethoxy-methyl-vinyl-silane, methyltriethoxysilane,
 3-aminopropyl-triethoxysilane,
 3-aminopropyl-trimethoxysilane, vinyltrimethoxysilane,
 diethoxydimethylsilane, di-methoxydimethylsilane,
 vinyltris(2-butyldenaminooxy)silane, tetramethoxysilane,

tetraethoxysilane, tetrapropylloxysilane, tetraisopropylsilane, tetraisobutylsilane, dimethylphosphite, dipropylphosphite, diethylphosphite, dibutylphosphite, di-tert-butylphosphite, trialkylphosphites trimethylphosphite, triethylphosphite, triisopropylphosphite, tributylphosphite), dimethyl-methylphosphonate, diethylmethylphosphonate, potassium pyro-phosphite, trimethylorthoacetate, triethylorthoacetate, tri-methylorthobutyrate, triethylorthobutyrate, tri-methylorthovalerate, trimethylorthoformate, including homolgues, analogues, isomers, derivatives, and mixture thereof.

4. The composition of claim.3, wherein the catalyst is selected from group consisting of. trimethoxymethylsilane, dimethylphosphite, diethylphosphite, tetramethoxymethane, tetraethoxymethane, trimethoxymethylmethane,

triethoxymethylmethane, methoxy methyl ester of acetic acid, tetranitromethane, and mixture.

5. The composition of claim 2, wherein said carboneous fuel is a hydrocarbon fuel.

6. The composition of claim 2, wherein said carboneous fuel is an Enhanced Combustion Structure ("ECS) compound having a latent heat of vaporization (LHV) equal to or

greater 21 kJ mol⁻¹ at its boiling temperature, and a minimum burning velocity (as measured by laminar Bunsen flame) of 40 cm/sec ("BV"), C2 - C12 aldehydes, aldehydic acids, C2 -C12 ethers, ether acids, C3 to C15 di-ethers, C1 - C15 alcohols, C2 - C12 oxides, C3 - C15 ketones, ketonic acids, C3 - C15 esters, alkyl formates, acetates, diacetates, butyrates, orthoesters, C3 - C12 diesters, C5 -C12 phenols, C3 - C20 glycol ethers, C2 - C12 glycols, glycol ethers, C3 - C20 alkyl carbonates, C3 - C20 dialkyl carbonates, C3 - C20 asymmetrical alkyl/dialkyl carbonates, C3 - C20 di-carbonates, C1 to C20 organic and inorganic peroxides, hydroperoxides, carboxylic acids, amines, nitrates, di-nitrates, oxalates, phenols, glacial acetic acids, C3 to C8 hydroxy esters of acetic acid, anhydrides, methoxy methyl ester of acetic acid, boric acids, orthoborates, hydroxyacids, orthoacids, anhydrides., acetates, acetyls, methyl esters, nitrates, di-nitrates, nitro-ethers, aldehydic acids, anhydrides, carbonic esters, carboxylic acids, esters, di-esters, ethers, di-ethers, formic acids, hydroxyacids, ketones, ketonic acids, nitrates, alkyl/cyclo/cycloalkyl/aryl nitrates, nitromethane, nitroethane, nitropropane, di-nitrates, amines, anilines, amides, hydrazines, nitrosyls, imides, methylamines, xylidine, 2,3-xylidine, ammonia, orthoborates,

othroesters, orthoacids, oxides, oxalates, oxalic acids, peroxides, hydroperoxides, and phenols, said compound optionally containing at least one substituent selected from alkyl, alkyloxy, dialkyl, dialkyloxy, polyalkyl, polyalkyloxy, aryl, amide, acetate, aldehyde, carboethoxy, car borne thoxy, carbonyl, carbonyldioxy, carboxy, ethoxalyl, ethoxy, formyl, glycolyl, glyoxylyl, hydroxyl, imide, methoxy, or methylenedioxy, nitrosyl radical, and mixtures thereof.

7. The composition of claim 7, wherein said ECS oxygenate is selected from the group consisting of methyl tertiary butyl ethers, ethyl tertiary butyl ether, tertiary methyl amyl ether, tertiary methyl ethyl ether, ethyl tertiary amyl ether, dimethyl ether, DIPE, methyl ester, C1 to C6 aliphatic alcohols, dimethyl carbonate, diethyl¹ carbonate, methylal, ethylal, and mixture.

8. The composition of claim 2, wherein said fuel contains at least one ribn-leaded element or derivative organic or inorganic compound (NLEC") containing said non-lead element, selected from the group consisting of 1A, 2A, 3B, 4B, 5B, 6B, 7B, 8, 1B, 2B, 3A, 4A, 5A, 6A, or 7A elements of the Periodic Chart of Elements (CAS version), and mixture, wherein said element or derivative compound, is combustible and

optionally has a minimum heating value of 4,000 Kcal/kg.

9. The composition of claim 8, wherein said NLEC is a combustible element or compound containing at least one element selected from the group consisting of aluminum, boron, bromine, bismuth, beryllium,, calcium, cesium, chromium, cobalt, copper, francium, gallium, germanium, iodine, iron, indium, lithium, magnesium, manganese, molybdenum, nickel, niobium, phosphorus, potassium, palladium, rubidium, sodium, tin, zinc, praseodymium, rhenium, silicon, vanadium, strontium, barium, radium, scandium, yttrium, lanthanum, actinium, cerium, thorium, titanium, zirconium, hafium, praseodymium, protactinium, tantalum, neodymium, uranium, tungsten, promethium, neptunium, samarium, plutonium, ruthenium, osmium, europium, americium, rhodium, iridium, gadolinium, curium, platinum, terbium, berkelium, silver, gold, dysprosium, californium, cadmium, mercury, holmium, titanium, erbium, thulium, arsenic, antimony, ytterbium, selenium, tellurium, polonium, lutetium, astatine, mixture thereof, including organic and inorganic derivatives.

10. The fuel composition containing an ECS oxygenate selected from MTBE, ETBE, DMC, DEC, methylal, ethylal,

methanol, ethanol, or mixture, and a compound selected
 from [2-(cyclohexenyl)ethyl] triethoxysilane, cyclohexenyl,
 dimethoxymethylsilane, benzyltrimethylsilane,
 N-(3-(trimethoxysilyl)propyl)ethylenediamine,
 N-1-(3-(trimethoxysilyl)propyl)diethylenetriamine,
 N-(3-(trimethoxysilyl)propyl)ethylenediamine,
 1-(trimethyl(silyl-)pyrrolidine, triphenylsilanol,
 octamethyltrisiloxane,
 2,2,4,4,6,6-hexamethylcyclotrisilazane,
 hexamethylcyclotrisiloxane, hexamethyldisilane,
 1,1,1,3,3,3-hexamethyl disilazane, hexamethyldisiloxane,
 hexamethyldisilthiane, allyltributylsilane,
 tetraalkylsilanes (e.g. tetraethylsilane,
 tetrabutylsilane, etc.), 3-aminopropyltriethoxysilane,
 benzytrimethylsilane, benzytriethylsilane,
 N-benzyltrimethylsilylamine, diphenyl-silanediol,
 dihexylsilanediol,
 (trimethylsilyl)cyclopentadiene, potassium methoxide,
 potassium ethoxide, potassium propoxide, potassium
 isopropoxide, potassium butoxide, potassium sec-butoxide,
 potassium tert-butoxide, potassium pentoxide, potassium
 tert-pentoxide, potassium phenoxide, potassium salt of acetic

acid, potassium hydrogenphthalate, potassium hydrogensulfate, monopotassium acetylenedicarboxylic acid, potassium pyrophosphate, potassium dihydrogenphosphate, potassium benzoate, potassium chloride, potassium hexoate (potassium salt hexoic acid), potassium acetate, potassium diphenylphosphide, potassium trimethylsilonalate, potassium phthalic acid, P-aminobenzoic acid potassium salt, monopotassium L-aspartic acid, potassium naphthenate, potassium hexacyanoferrate (II), potassium hexacyanoferrate (III), potassium hexacyanocobalt II- ferrate, potassium hexacyanocobalt, potassium sodium ferricyanide, or mixture.

11. A composition comprising MMT and a compound selected from the group consisting of triethoxymethylsilane, dimethylphosphite, ethoxytrimethylsilane, isobutyltriethoxy-silane, tetramethylsilane, dimethoxy-methyl-vinyl-silane, methyltriethoxysilane, 3-aminopropyl-triethoxysilane, 3-aminopropyl-trimethoxysilane, vinyltrimethoxysilane, diethoxydi-methylsilane, dimethoxydimethylsilane, vinyltris(2-butyldenamino-oxy)silane, tetraalkyloxysilanes, tetramethoxysilane, tetraethoxysilane, tetrapropylloxysilane,

tetraisopropylsilane, tetraisobutylsilane, a
 dialkylphosphites, dimethyl-phosphite, diethylphosphite,
 dipropylphosphite, dibutylphosphite, di-tert-butylphosphite,
 trialkylphosphites, trimethylphosphite, triethylphosphite,
 tripropylphosphite, triisopropylphosphite,
 tributyl-phosphite), dimethylmethylphos-phonate,
 diethylmethyl-phos-phonate, P-pyrophosphate,
 trimethyl-orthoacetate, trimethylorthovalerate,
 trimethylorthobutyrate, trimethylortho-formate,
 alkyloxymethanes, tetraalkyloxymethanes, tetramethoxymethane,
 tetraethoxymethane, tetrapropoxymethane,
 tetraisopropoxy-methane, tetratert-butpxy-methane, potassium
 pyrophosphite, trimethylorthoacetate, triethylorthoacetate,
 trimethylortho-butyrate, triethylortho-butyrate,
 trimethylorthovalerate, trimethylorthoformate,
 dimethoxymethane, diethoxyethane, tetramethoxymethane,
 triethoxymethylmethane, tri-methoxymethylmethane,
 tetraethoxymethane, trimethoxymethylethane,
 triethoxymethylethane, glacial acetic acid, acetic acid
 anhydride, (acetyloxy) acid anhydride, ethyl ester (acetyloxy)
 acetic acid, aminoxy acetic acid, aminoxy acetic acid
 hydrazide, ammonium acetate, acetoacetic acid, methoxyacetic

acid, ethoxyacetic acid, methoxy ethyl ester of ;»acetic acid,
 methoxy methyl ester of acetic acid, ethoxy methyl ester of
 acetic acid, ethoxy ethyl ester of acetic acid, propoxy methyl
 ester of acetic acid, oxoacetic acid, an alkylhydroxyesters
 of acetic acid, methylesterhydro-xyacetic acid,
 ethylesterhydroxy-acetic acid, propylesterhydro-xyacetic acid,
 alkyl acetates, methyl ester acetic acid ethyl arsenate, ethyl
 arsenite, methyl ester of butanic acid, ethyl ester of butanic
 acid, 2-hydroxybutanic acid, 3-hydroxybutanic acid,
 3-hydroxy-ethylester of butanic acid, 2-hydroxyethylester of
 butanic acid, diphenyl carbonate, dipropyl carbonate,
 ethylmethyl carbonate, dibutyl carbonate, tetranitromethane,
 triethylphosphine oxide, triethylphosphine oxide,
 triethylphosphine, diethyl-phosphinic acid,
 dimethylphosphinic acid, ethyl diethylphosphinic acid,
 diethylphosphonic chloride, dibutyl ester phosphonic acid,
 (1,1-dimethylethyl) phosphonic acid, ethenyl diethyl ester
 phosphoric acid, diethyl ethylphosphonate, ethyl dimethylester
 phosphonic acid, methyl dimethylester phosphonic acid, methyl
 monoethylester phosphonic acid, methyl monomethylester
 phosphonic acid, methyl-O,O-dimethylester phosphonothioic
 acid, diethyl ester phosphoric acid, dimethyl ester phosphoric

acid, tributyl phosphate, ethylphosphate, trimethyl ester ester phosphoric acid, triethyl ester ester phosphoric .acid, tripropyl phosphate, O,O,O,-triethyl ester phosphorothioic acid, diethylester phosphorous acid, dimethylester phosphorous acid, tributyl ester phosphorous acid, triphenyl ester phosphorous acid, O,O,S-tiethyl ester phosphorodithioic acid, 2-methyl-1,2,propanediol, 2-methyl-2-nitro-1,3,-propanediol, 2-methyl-2-propyl-1,3,-propanediol, 1-nitrate-1,2,propanediol, 1,1',1'',1'''-[methanetetrayltetrakis(oxy)]-tetrakis propane, methyl propyl ether, isopropylmethyl ether, isobutyl methyl ether, ethyl propyl ether, propylmethyl ether, butyl methyl ether, 1,1'-[methylenebis (oxy)] bis [2-methyl-propane, methylethoxy)-propane, 2,2',2''-[methyldiyne-tris(oxy)] tris propane, 1,1',1''-[methyldiyne-tris(oxy)]tris[2-methyl propane, 2-methyl-1-nitro propane, 2-methyl-2-nitro propane, hydracrylonitrile, 1,1,1-triethoxy-propane, 1,1,3-triethoxy-propane, 1,1,1-trimethoxy-propane, 1,1,3-trimethoxy-propane, 1,1,1-trifluoro-3-nitro-propane, 2-pyrrolidinone, phenol, and mixture.

12. The composition of claim 11, wherein the compound is selected from group consisting of

trimethoxymethylsilane, ethoxytrimethylsilane,
isobutyltriethoxysilane, tetra-methylsilane,
dimethoxy-methyl-vinyl-silane, methyltriethoxysilane,
3-aminopropyl-triethoxysilane,
3-aminopropyl-trimethoxysilane, vinyltrimethoxysilane,
diethoxydimethylsilane, dimethoxydimethylsilane,
vinyltris(2-butyldenaminooxy)silane, tetramethoxysilane,
tetraethoxysilane, tetrapropyloxysilane, tetraisopropylsilane,
tetraisobutylsilane, dimethylphosphite, dipropylphosphite,
diethylphosphite, dibutylphosphite, di-tert-butylphosphite,
trialkylphosphites trimethylphosphite, triethylphosphite,
triisopropylphosphite, tributylphosphite),
dimethyl-methylphosphonate, diethylmethylphosphonate,
potassium pry-o-phosphite, trimethylorthoacetate,
triethylorthoacetate, tri-methylorthobutyrate,
triethylorthobutyrate, tri-methylorthovalerate,
trimethylorthoformate, including homolgues, analogues, isomers,
derivatives, and mixture thereof.

The composition of claim 2, additionally containing a
glycol ether or a nitrogen containing compound.

ABSTRACT

A fuel composition relating to a broad spectrum of pollution

reducing, improved combustion performance, and enhanced stability fuel compositions for use in jet, aviation, turbine, diesel, gasoline,, and other combustion applications. More particularly, the present invention relates to metallic vapor phase combustion fuel compositions employing certain co-combustion agents, including trimethoxymethylsilane.